WHAT IS CLAIMED IS:

1. A positioning system, comprising:

a frame;

a table to be positioned with respect to the frame;

a first flexible member that connects said table to a first movable base, the first flexible member being resistant to movement in at least one first degree of freedom, and flexible in other degrees of freedom;

a support structure that connects said first movable base to said frame; and

at least one actuator connected to said first movable base in said first degree of freedom with respect to said frame.

2. The positioning system of claim 1, comprising at least one additional actuator to adjust the position of said table in at least a second degree of freedom.

3. The positioning system of claim 1, said first movable base adjustable relative to the frame in the z direction.

4. The positioning system of claim 3, said table adjustable relative to said first movable base in the x, y, θ_x, θ_y, and θ_z directions.

5. The positioning system of claim 1, wherein said first movable base comprises a magnet, and said actuator comprises one or more coil assemblies.

6. The positioning system of claim 5, wherein a first said coil assembly includes a conduit therethrough, said first flexible member positioned in said conduit.

7. The positioning system of claim 1, said support structure comprising at least one flexure connected to said movable base and connected to said frame.

8. The positioning system of claim 1, said support structure comprising one or more bellows.

9. The positioning system of claim 1, said support structure comprising one or more springs.

10. The positioning system of claim 1, further comprising:

a second flexible member, a first end of said second flexible member connected to said table, a second end of said second flexible member connected to a second movable base; and

a third flexible member, a first end of said third flexible member connected to said table, a second end of said second flexible member connected to a third movable base.

11. A positioning system comprising:

a table mounted on a frame;

connection means for connecting said table to a movable member;

first actuator means for adjusting the position of the movable member with respect to the frame;

second actuator means for adjusting the position of the table with respect to the frame; and

support means for connecting said movable member to said frame.

12. A positioning system comprising:

a table mounted on a frame;

a connection mechanism that connects said table to a movable member;

a first actuator connected to the movable member, the first actuator adjusting the position of the movable member with respect to the frame;

a second actuator connected to the table, the second actuator adjusting the position of the table with respect to the frame; and

a support structure that connects said movable member to said frame.

13. The positioning system of claim 12, wherein said first actuator comprises a magnetic actuator.

14. The positioning system of claim 12, said support structure comprising a flexible member permitting movement of said table with respect to said movable member in at least one degree of freedom.

15. The positioning system of claim 12, said second actuator adapted to adjust the position of the movable member with respect to said frame in the z direction, and said first actuator adapted to adjust the position of the table in the x, y, θ_x, θ_y, and θ_z directions.

16. A semiconductor processing system, comprising:

a source of radiant energy;

a reticle positioned such that the radiant energy is directed onto the reticle;

a wafer positioned on a table such that the radiant energy strikes the wafer after the passing through the reticle;

the table supported by a support member which is flexible in at least one degree of freedom; and

said support member mounted on a movable member which is adjustable in additional degrees of freedom.

17. The semiconductor processing system of claim 16, wherein said movable member is connected to said frame by at least one flexible member.

18. The semiconductor processing system of claim 17, wherein said flexible members substantially support the combined gravitational weight of said table, said support member, and said movable member.

19. A device manufactured with the semiconductor processing system of claim 16.

20. A processing system, comprising:

a workpiece mounted on a platform;

means for directing radiant energy onto the workpiece;

a first means for adjusting the position of the workpiece with respect to the platform in at least one degree of freedom;

a second means for adjusting the position of the workpiece with respect to the platform in additional degrees of freedom.

21. A processing system, comprising:

a workpiece mounted on a platform;

a source of radiant energy positioned to direct radiant energy onto the workpiece;

a support assembly adapted to adjust the position of the workpiece with respect to the platform in at least one degree of freedom;

an actuator assembly adapted to adjust the position of the workpiece with respect to the platform in an additional degree of freedom.

22. The processing system of claim 21, said support assembly comprising a flexible member supporting said workpiece, said flexible member flexible in five degrees of freedom.

23. The processing system of claim 22, said actuator assembly comprising a movable member connected to said flexible member, said movable member adjustable relative to said platform in the remaining sixth degree of freedom.

24. A method of positioning a table relative to a frame,

said table movable relative to the frame along a first axis, a second axis, and a third axis, and rotatable about each of the first, second, and third axes;

said table connected to a first, second, and third support member, said support member flexible with respect to movement along said first and second axes, each said support member rotatable about each of said three axes, and each said support member substantially rigid with respect to movement along said third axis;

said first support member attached to a first moveable member, said second support member attached to a second moveable member, and said third support member attached to a third moveable member;

said method comprising:

adjusting the position of the table relative to the frame along said first and second axes, and with respect to rotation about said third axis;

adjusting the position of the table relative to the frame along said third axis by adjusting the positions of each of said first, second, and third movable members with respect to the frame along said third axis; and

adjusting the position of the table relative to the frame with respect to rotation about said first and second axes by adjusting the positions of one or more of said movable members with respect to the frame along said third axis.

25. The method of claim 24, wherein the position of said first movable member is adjusted using a magnetic actuator.

26. A method of positioning a table relative to a frame comprising:

adjusting the position of the table relative to the frame in three degrees of freedom;

adjusting the position of the table relative to the frame in a fourth, fifth, and sixth three degree of freedom by adjusting in the fourth degree of freedom the positions of each of a first, second, and third supporting base, each of which is substantially rigidly connected to the table with respect to movement in the fourth degree of freedom.

27. The method of claim 26, wherein said adjustment of the table relative to the fourth degree of freedom includes applying force to each said supporting base by varying the electrical current in one or more coils of a magnetic actuator attached to each said supporting base.

28. A method of supporting a table on a frame, comprising:

mounting the table on at least a first bendable support, the first bendable support resistant to movement in a first direction;

mounting said first bendable support on said frame such that its position is adjustable relative to the frame in the first direction.

29. A method for making a positioning system, comprising:

providing a frame;

mounting a base on the frame movable relative to the frame in at least a first degree of freedom;

connecting a flexible support on the base; and

mounting a table on the flexible support such that the table is movable relative to the flexible support in at least one degree of freedom.

30. The method of claim 29, further comprising connecting at least one actuator to the table to control movement of the table in at least a second degree of freedom.

31. A method for making an exposure apparatus utilizing the method of claim 29.

32. A method of making a wafer utilizing the exposure apparatus of claim 31.

33. A method of making a device, including at least an exposure process, wherein the exposure process utilizes the exposure apparatus made by the method of claim 31.